

CLAIMS

1. (Previously presented) A method of forming an extruded thin-walled article comprising:

 providing a polymeric binder system comprising a substantially homogeneous solution of a thermoplastic elastomer polymeric binder and an organic solvent which is in liquid form at room temperature;

 adding a ceramic or metal powder to said polymeric binder system to form a mixture;

 evaporating said organic solvent from said mixture; and
 extruding the remaining mixture from a die to form a thin-walled green article.

2. (Original) The method of claim 1 further including heating said extruded thin-walled green article to burn-off said binder and to sinter the article.

3. (Original) The method of claim 1 wherein said polymeric binder comprises a thermoplastic block copolymer, a first thermoplastic polymer, a second thermoplastic polymer different from said first thermoplastic polymer, and a plasticizer.

4. (Original) The method of claim 3 wherein said thermoplastic block copolymer comprises a copolymer of styrene and butadiene.

5. (Original) The method of claim 3 wherein said first thermoplastic polymer comprises polystyrene.

6. (Original) The method of claim 3 wherein said second thermoplastic polymer comprises polyindene.

7. (Original) The method of claim 3 wherein said polymeric binder further includes an antioxidant.

8. (Original) The method of claim 3 wherein said plasticizer comprises at least one oil and at least one wax.

9. (Original) The method of claim 1 wherein said solvent is toluene or tetrahydrofuran.

10. (Original) The method of claim 1 wherein said solvent is selected from cyclohexane, methylcyclohexane, benzene, ethylbenzene, styrene, lower chlorinated aliphatic hydrocarbons, tetrahydrofurfuryl alcohol, phenol/acetone, dimethyltetrahydrofuran, dioxane, methyl ethyl ketone, diisopropylketone, cyclohexanone, ethyl acetate, butyl acetate, n-butyl phthalate, carbon disulfide, and tributyl phosphate.

11. (Original) The method of claim 1 wherein said remaining mixture is extruded at a temperature of between about 100 to 135°C.

12. (Original) The method of claim 1 wherein said ceramic powder comprises yttria-stabilized zirconia.

13. (Previously presented) The method of claim 1 wherein said metal powder comprises nickel oxide plus yttria-stabilized zirconia.

Claims 14-27 (Cancelled)

28. (Previously presented) A method of forming an extruded thin-walled article comprising:

providing a polymeric binder system comprising a substantially homogeneous solution of a thermoplastic elastomer polymeric binder and an organic solvent;

adding a ceramic or metal powder to said polymeric binder system to form a mixture; wherein said binder system and powder are mixed at a temperature of about 50°C;

evaporating said organic solvent from said mixture; and

extruding the remaining mixture from a die to form a thin-walled green article.

29. (Previously presented) A method of forming an extruded thin-walled article comprising:

providing a polymeric binder system comprising a substantially homogeneous solution of a thermoplastic elastomer polymeric binder and an organic solvent,

adding a ceramic or metal powder to said polymeric binder system to form a mixture; wherein said organic solvent reduces the viscosity of said binder system to allow mixing of said binder system and powder at temperatures below 100°C;

evaporating said organic solvent from said mixture; and

extruding the remaining mixture from a die to form a thin-walled green article.